THE CONSIDERATION OF MULTIPLE HAZARDS IN CIVIL DEFENSE PLANNING AND ORGANIZATIONAL DEVELOPMENT

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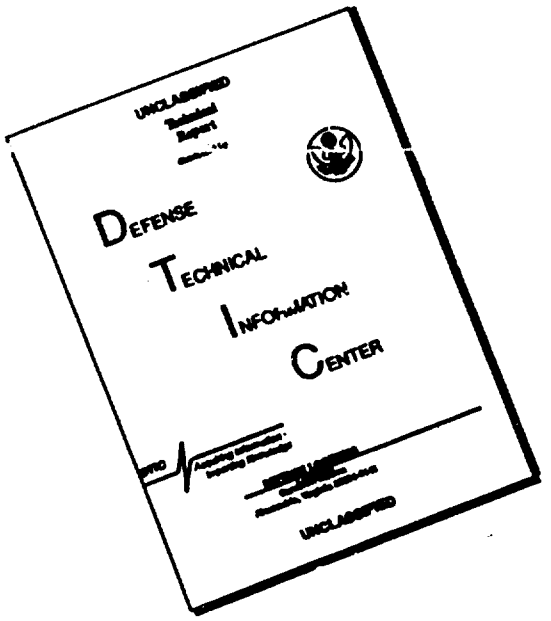

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13. ABSTRACT

The report recommends a multiple-hazards approach to civil defense preparedness for a wide range of natural, environmental, and other disasters. Adequate preparedness for massive nuclear attack presupposes a substantial upgrading of the organizational capacity in Civil Defense agencies and those arms of local government and administration which must cooperate in an effective response to nuclear disaster. Given present and projected CD funding levels and the low visibility of CD efforts, a multiple-hazards approach is necessary to establish the required organizational capacity to deal with nuclear disaster.

Many civil defense professionals rightly fear that a multiple-hazards approach could result in an exclusive focus on the more easily perceived and defined hazards posed by non-nuclear disasters. This possibility can be countered, however, by appropriate research and planning initiatives on the part of CD agencies, particularly the federal Office of Civil Defense.

OCD research should develop methods for initiating and assisting in comprehensive disaster preparedness planning at the local level, and should identify those components of multiple-hazards preparedness which are closely related to the development of organizational capacity to deal with nuclear attack. These components of multiple-hazards preparedness should be given priority status in CD policy and programs supporting comprehensive disaster preparedness activities.

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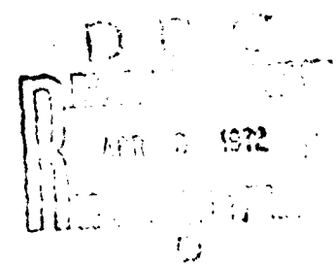

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Introduction

Civil Defense studies over the past decade have added substantially to our knowledge of how disaster impacts a complex social system and of the responses required to minimize the effects of disaster on the American population. The contemplation and study of thermonuclear attack -- a potential disaster of unprecedented magnitude -- has required students of civil defense to examine carefully the patterns of interdependencies, social relationships, and routinized behavior which are found in a technologically advanced society. How is the threat or event of disaster reflected in these patterns? What disruptions have the gravest implications for the immediate and long-term survival of people and resources? And most importantly, perhaps, how can populations experiencing severe stress most effectively be organized to counter the threat posed by disaster and to perform the constructive actions that would produce the highest possible rate of recovery?

The examination of such questions has benefitted from the forcing functions on research that are implicit in the thermonuclear disaster situation. Unlike the studies of most other forms of disaster, the investigation of nuclear attack contingencies must consider a number of characteristics of a disaster which are not usually present in other forms of disaster, or not simultaneously present. Such characteristics include: the possibility of institutional disruption -- for example, an absence of a credible medium of economic exchange during the period when the

labor force must be re-organized and motivated to perform priority tasks; the absence of substantial "outside" assistance for a stricken community, which in many cases would probably have to organize the affected population itself to carry out emergency and relief actions without support from other parts of the country; the disruption of nationally interdependent production systems, with pressing requirements to re-establish links between plants and organizations located in different communities absorbed in efforts to meet a variety of critical, immediate needs. The investigation of disaster effects and appropriate responses under such hypothetical and probler atica. constraints requires, inherently, a relatively thoroughgoing appreciation of the total set of effects produced by disaster, including the implications of these effects for the organization of the population to counter, or recover from, a threatened or actual disaster.

The refinements in our knowledge of disaster and appropriate countermeasures which have evolved from Civil Defense research are clearly applicable in the area of non-nuclear disaster. The present essay considers how such knowledge might support the organization of effective responses to a variety of hazards which periodically threaten American communities. The discussions which follow reflect an emphasis on the social and psychological aspects of disaster, their implications for effective communication among governmental organizations and affected populations, and their implications for the organization of appropriate disaster-response activities across a range of disaster situations -- in sum, a "multiple-hazards" approach to preparedness. *

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* The report is the product of one task under OCD Contract No. DAHC-20-71-C-0239, Work Unit 4321D, and is not based on new research in the problem area. Rather, the objective has been to review previous work to determine its applicability to the logic of possible multiple-hazards approaches to Civil Defense.

The concept underlying these discussions is the idea that the response to disaster may be viewed as a product of two interacting factors:

1. the capacity of formal disaster-response organizations, and

2. the disaster-relevant knowledge and resources of affected populations.

At a given level of effectiveness of disaster-response actions, the two factors may be considered as roughly supplementary of one another, with higher capacity in formal organizations compensating for a degree of ignorance or lack of resources in the affected populations, and vice versa. Stated another way, the capacity to respond to disaster may reside either in formal, crisis-oriented organizations or the general population; in reality, it resides to a degree in both, and the objectives of preparedness activities are to increase the capacities in both areas and to insure that they will in fact "mesh" with one another. This concept of the relationship between formal organization and public knowledge affords a useful basis for considering a multiple-hazards approach to Civil Defense as it might affect the primary OCD mission -- protecting lives and property in the event of nuclear disaster.

Civil Defense has never been funded at levels even approaching the requirements implicit in preparedness for nuclear attack, and many would contend that the independence of state and local civil defense agencies has further hindered the development of the comprehensive strategies, detailed plans, and organizational wherewithal required to implement an effective program. Lacking an extensive organizational apparatus itself, Civil Defense has sought to involve other organizations in preparedness activities. With varying degrees of success, Civil Defense officials have sought to interest local government officials,

crisis-response organizations, and volunteer groups in playing effective roles in the event of nuclear attack. At the same time, upon encountering numerous obstacles to the development of formal organizational structures, Civil Defense has sought through various programs to train shelter managers, radiological monitoring personnel, and other specialists, to educate the general public in the fundamentals of preparedness, and most notably to provide marked and stocked shelters and specialized equipment for dealing with nuclear hazards. Despite these efforts, however, it is the consensus of civil defense professionals that support and resources have not been sufficient to create either an adequate formal structure or a public that is well-informed about how to respond to a nuclear catastrophe.

The question arises, then, whether a multiple-hazards approach would result in a greater capability to perform the primary mission. Would a systematic program aimed at countering multiple hazards result in an increased capacity of government and other organizations to deal with a nuclear disaster? And would a multiple-hazards approach to civil defense result in a population better prepared to take appropriate measures, supportive of formal crisis-response organizations, when faced with a nuclear disaster? In other words, might a multiple-hazards approach pay off in the nuclear-attack contingency as well as in an increased capability to counter the effects of disaster in its many non-nuclear forms?

No final answers to these questions are advanced here, although the weight of the evidence appears to fall heavily to the affirmative side. This paper is based on a necessarily brief review of information about human behavior in relation to organization. The paper attempts more to raise issues than to resolve them, while recommending a more thorough analysis of the multiple-hazards approach as it might impact the nation's capacity to respond effectively to both a nuclear disaster and a range of other disaster situations.

Part I below presents a brief analysis of the cases for and against a multiple-hazards approach, viewed from the perspective afforded by studies of behavior and social organization under conditions of disaster. Several aspects of current Civil Defense planning are discussed in relation to the possible impact of a multiple-hazards approach. Finally, a number of potential approaches to the development of a multiple-hazards capability are described.

Part II below, entitled "Human Behavior in Response to Disaster", is intended to serve three purposes. First, it describes a number of prominent characteristics of behavior under conditions of disaster, while relating such behavior to problems of social organization and suggesting its implications for disaster-responsive actions on the part of both an informed public and formal organizations. Second, it indicates that behavior under stress exhibits many commonalities across the various forms of disaster, suggesting that the development of informed or knowledgeable public attitudes toward disaster can best be addressed by considering nuclear and other disasters together. Third, it seeks to describe disaster behavior in terms comprehensible to the intelligent layman, suggesting that analyses of this critical topic could be readily incorporated in various forms of communications to local officials and the general public.

Part I

SOME FACTORS IN THE DEVELOPMENT OF A MULTIPLE-HAZARDS APPROACH

The American civil defense effort since World War II has developed primarily as a response to the threat of a massive nuclear attack on the United States, and much of Civil Defense planning and research has been concerned with that contingency. Increasingly, however, Civil Defense officials at all levels of government have become interested in using CD capabilities to support emergency operations aimed at countering the effects of natural disasters, environmental hazards, and other non-nuclear threats to life and property. Already, there are numerous instances of effective civil defense actions in natural disaster situations, and the Director of the Office of Civil Defense has endorsed the position that CD agencies should be prepared to assist communities suffering the threat or impact of a wide range of disasters.*

There remain, however, a number of questions as to how the Office of Civil Defense and state and local CD agencies can and should relate to non-nuclear hazards. The efforts to date, while apparently effective in many cases, appear to have been piecemeal applications

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* "U.S. Civil Defense professionals now emphasize a much broader concept of Civil Defense. They see it as the sum total of government services which must be ready when disaster of any kind threatens or strikes." John E. Davis, Director of the Office of Civil Defense, in a 1971 report to the NATO Civil Defense Committee in Brussels, Belgium, as reported in the U.S. Civil Defense Council Bulletin (November 1971), p. 3.

of CD resources to emerge . situations -- disasters resulting from hurricanes, tornadoes, an other natural phenomena -- and to have resulted from locally det rmined needs as viewed by officials on the spot. Presumably, a nu nber of policy decisions and systematic planning efforts would yet b e required to develop a comprehensive OCD approach for dealing w ith multiple hazards.

A central con ern in the development of a multiple-hazards approach must be its relation to the primary CD mission as defined by existing legislation - - that is, the task of preparing the country to respond to a nuclear d isaster. How can a multiple-hazards approach best supplement and sup ort, rather than diminish, the CD capability to use limited resources i n carrying out the primary mission?

The followi g sections consider this question from the perspective of the social a d psychological factors which affect the capacity to organize and comm unicate with populations affected by disaster. The principal topics ad dressed are:

- Multip e-hazards in relation to the nuclear preparedness m ission
- Consid erations in organizational development to implen ent a multiple-hazards approach
- Some r ecommended steps in the development of a multip e-hazards approach.

Multiple Hazards in Relation t the Nuclear Preparedness Mission

A maximally effective response to disaster may be considered to result from the successful interaction of disaster-response organization and an informed population of citizens affected by a threatened or

actual event. For purposes of analysis, emergency organization may be thought of as compensating for a lack of knowledge, information, and resources in the affected population. Thus, to cite an extreme case, if all of the people affected by a disaster were to understand what is happening, if they knew that actions are required, and if they had available the resources to carry out the necessary actions, then the job of the disaster-response organization would be minimal. On the other hand, an uninformed population or one without the necessary resources would be dependent on relatively elaborate forms of emergency organization to provide for effective countermeasures. In real disaster situations, of course, the response is normally a product of both elements, and the effectiveness of the disaster response is often a function, in part, of a satisfactory meshing of organizational measures and the knowledge, information, and resources of the population.

This perspective affords a basis for describing -- with respect to social and psychological factors and their implications for preparedness planning and organization -- the present Civil Defense effort, the current obstacles to the creation of maximally effective means for dealing with nuclear disaster, some shortcomings of present approaches to crisis management, and some major advantages and disadvantages which CD professionals associate with a multiple-hazards approach.

Major Thrusts in the Present CD Effort

Civil Defense at the federal, state, and local levels is often viewed primarily as an "enabling" organization, designed to encourage and support the adaptation of other, more familiar governmental units to their special roles in a nuclear attack situation. The concept of civil defense is normally equated to the concept of government under conditions

of emergency, and the principal objective of Civil Defense as an organization is to insure that the total governmental response to disaster is as effective as any given set of circumstances would allow. In keeping with the logic advanced earlier, the American Civil Defense program may be viewed as having pursued three general goals with respect to formal organizations and the creation of a knowledgeable citizenry.

- Civil Defense has sought to inform and advise other governmental units as to the preparations and actions they should undertake in the face of a threatened or actual nuclear attack on the country.

- Civil Defense has sought to provide resources supportive of a suitable response to nuclear attack -- resources such as marked and stocked fallout shelters, radiological monitoring devices, and supplemental communications networks -- in sum, resources which are peculiar to the requirement to respond to a particular form of massive disaster.

- Civil Defense has sought to inform the American public -- through training programs, communications efforts, volunteer organizations, and other means -- as to the actions required of the population to protect life and property and support governmental actions in a nuclear-attack situation.

The Civil Defense research and management operation may thus be viewed as preparing governmental organizations and the public to respond in mutually supportive ways to a nuclear disaster, while providing the special resources and wherewithal which governments and people would require to deal with a particular form of crisis.

Obstacles to the Creation of an Effective Civil Defense against Nuclear Attack

Neither the state of formal organizational preparedness nor the level of public knowledge can now be considered adequate to cope effectively with a nuclear disaster situation in the United States. This less-than-adequate capability is a natural result of two underlying, and interacting, factors: civil defense efforts have received meagre fiscal support and minimal public support. An explanation of present inadequacies would include the following elements:

> First, the nuclear preparedness mission involves an unfamiliar, hypothetical situation. In the final analysis, no one can state, to the satisfaction of all, precisely what would constitute an adequate level of preparedness for nuclear disaster. Planning must deal with many contengencies and a wide range of criteria of effectiveness; hard benefit-cost appraisals are difficult to establish with a high degree of consensus.
>
> Second, nuclear disaster is a vaguely defined threat, with a low probability of occurrence, in the eyes of most Americans. Although public opinion polls have reported general public support for civil defense, they also indicate relatively little public awareness of what civil defense agencies do.
>
> Third, because CD agencies are poorly funded and have largely advisory relationships with other units of government, civil defense officials have relatively little influence over the actions of other formal organizations.
>
> Fourth, CD agencies are themselves small, and the local, state, and federal CD organizations are not parts of a single organization. This condition naturally constrains the development of concerted efforts.

It is not surprising, in light of these factors, that civil defense activities have low visibility. Nor is it probable that a civil defense focussed on nuclear disaster will be able to overcome these obstacles in the foreseeable future.

The obstacles themselves suggest an important precondition for the development of a thoroughgoing effort to counter possible nuclear attacks. The people of the country must endorse expenditures for a high-priority effort which would create an effective organizational apparatus. So long as civil defense is viewed largely as a response to nuclear disaster, the evidence suggests that such support will not be forthcoming. A nuclear disaster is not easily described even by the expert, and to the citizen it represents an event at once horrible, threatening, ill-defined, mysterious (the radiological hazard), and one for which measured, calm responses are not readily defined. To the very human disaster response that "it will happen to someone else" is added a belief that appropriate personal responses cannot readily be assimilated. The convenient logic that a nuclear holocaust is improbable at any given time thus reinforces a basic psychological drive to avoid thinking about the subject at all.

Nuclear Disaster Preparedness: The Present Effort

Faced with numerous obstacles and supplied with limited resources, Civil Defense officials have emphasized the development of operational plans, guidances, and instructions which could be taken "off the shelf" during a crisis period and implanted in operating systems. These materials are often quite detailed and systematically take account of a range of possible operating situations -- witness the ALFA NEOP guidance for pre-, trans-, and postattack managers in crisis situations. Based as they are on a considerable body of research and study, these plans constitute a major source of operational and management guidance in the event of a nuclear attack.

Civil Defense officials and researchers are also aware, however, that in a crisis such preparations can be useful only to the extent that management personnel, organizational machinery, and a receptive public are available to implement the plans. Critical questions include:

1. What would be the duration of a crisis period, how would it be appraised by the public, and what civil defense measures during that period would be viewed as part of an escalation (thereby limiting their desirability in the eyes of high-level decisionmakers)?

2. Would the public and the officers of various governmental units turn, in a crisis, to a low-visibility organization? That is, would civil defense become, suddenly, a credible source of guidance?

3. How rapidly could existing organizations adapt to the operational patterns required for their roles in a nuclear disaster situation?

4. Given the complexity of the society and the nature of psychological responses to massive disaster, could a rapid organizing effort prepare American communities to counter the wide range of effects which such a disaster could produce?

The questions suggest doubts about the adequacy of civil defense preparations -- doubts widely shared by Civil Defense officials even as they go about the tasks of analyzing potential attack effects on the economy and society, expanding the inventory of fallout shelters and special equipment, and providing Civil Defense instruction to the general public. Most of these officials, presumably, would prefer a concerted programmatic effort to develop a standing nuclear-preparedness capability.

Multiple-Hazards Approaches in Relation to Nuclear Preparedness

At first glance, a multiple-hazards approach would appear to offer solutions to a number of the problems being encountered by Civil Defense professionals. By focussing on forms of disaster which are relatively familiar to threatened communities, CD agencies would automatically upgrade their "relevance" as perceived by the general public. Officials of other formal organizations would also find, presumably, a more "realistic" basis for relating their activities to those of civil defense groups (with the added possibility, of course, that they would perceive CD agencies as competing for the same functional roles in the community). Evidence for both propositions is abundantly available in the past and current efforts of a number of local and state CD organizations to relate to natural and environmental disasters and a range of other community activities, often far removed from the basic CD mission. These active CD organizations have sensed a need to modify emphasis on the primary mission in order to maintain more meaningful and attractive roles in the daily life of their communities. Like a number of senior CD officials, many local and state CD professionals apparently view a broad range of concerns as essentially compatible with preparations to pursue the primary mission. In sum, operational experience, as well as the logic of CD's position in the larger scheme of things, is suggesting that something like a multiple-hazards approach can serve to preserve and enhance the organizational integrity of Civil Defense.

Despite the many indications that a multiple-hazards approach might help re-vitalize the CD effort, however, the proposition that the OCD adopt or formalize such an approach has provoked mixed reactions among many knowledgeable professionals concerned with nuclear disaster preparedness. This hesitancy to expand the scope of CD activities merits

careful attention, since it appears to be based on at least two rather accurate perceptions of (1) the unique characteristics of the primary mission and (2) the tendency for organizations to be structured and developed in accordance with the more familiar and comfortable aspects of their missions.

Many students of civil defense are aware that nuclear disaster poses a number of unique problems in preparedness planning. Many of them recognize that a large-scale nuclear attack on a complex society could introduce psychological impacts and social structural damage not usually associated with other forms of disaster. All of them are aware that the impact of a nuclear disaster -- if measured only in terms of conventional forms of direct damage to life and property -- is almost incalculably greater than the damage resulting from other forms of disaster. And whether or not they subscribe to the proposition that nuclear disaster can produce important social and institutional effects, these professionals are often reflecting concern over the major psychosocial impacts implicit in nuclear disaster: its scope and magnitude, out of all proportion to other forms of disaster; its suddenness -- massive, widespread physical effects in a few hours or days; and its essential quality of being unfamiliar to those affected by it and attempting to respond to it -- in other disasters, most elements of the event and its response are familiar to many of the people called upon to react constructively, whereas nuclear disaster would call for immediate, informed responses by all citizens and organizations, with a minimum of assistance from "professionals", "outside" communities, or persons otherwide unaffected by direct effects. Clearly, a case can be made for the uniqueness of nuclear disaster and the need for focussing special preparedness efforts on it.

In light of these characteristics of a nuclear preparedness mission, would political and bureaucratic realities lead a multiple-hazards CD organization to downgrade the less easily comprehended aspects of its mission? Once a multiple-hazards approach were formalized, would not a variety of forces be set in motion to emphasize those parts of the (expanded) CD mission which are most easily communicated to the public and other organizations? Such possibilities cannot be discounted. To many CD professionals, they suggest that a potentially critical and difficult national defense mission could come to be treated as a poor relation by the only agencies of government charged with thinking about and preparing for a disaster of unprecedented proportions.

Considerations in Organizational Development to Implement a Multiple-Hazards Approach

OCD officials have undertaken to strengthen and upgrade the organization, and they appear to consider some form of multiple-hazards approach as supportive of that effort. At the same time, many state and local CD agencies have spontaneously initiated a variety of activities which fall into the category of preparations to deal with non-nuclear forms of disaster. Given the nature and criticality of the primary CD mission, the organization's previous posture, and a number of serious reservations about the advisability of a multiple-hazards focus, it seems clear that an unplanned or piecemeal shift to multiple-hazards planning and operations runs the risk of producing many negative effects on the CD effort without fully realizing the potential benefits of such a shift. Comprehensive planning for the development of a multiple-hazards approach would offer the best means for realizing the advantages and avoiding the pitfalls implicit in such a development.

The following sections describe a number of factors which should be taken into account in the planned development of a multiple-hazards approach to civil defense. This discussion is based largely on considerations of social and psychological factors which affect both the performance of disaster-response activities and the development of organizations for carrying out the activities effectively. It does not presume to encompass the full range of policy and other considerations which would influence OCD decisionmaking with respect to multiple hazards.

The fundamental assumptions underlying this discussion are that:

1. OCD and other CD agencies have a legislative mandate to prepare the country to withstand and recover from a thermonuclear attack, as well as acts of bacteriological and chemical warfare.

2. CD agencies at all levels will continue to perform an "enabling" function, assisting rather than directing other formal organizations concerned with disaster readiness.

3. OCD and operating CD agencies possess certain unique capabilities to respond to one form of disaster -- nuclear attack.

4. OCD and operating agencies possess a very substantial knowledge -- unequalled in other organizations -- of the total effects of disaster and appropriate countermeasures.

Within the context afforded by these assumptions, the development of a multiple-hazards capability should take advantage of the following capabilities and factors.

- Existing knowledge of the total impact, and set of appropriate responses to, a disaster.

- The fact that many communalities are found in the effects of, and responses to, various forms of nuclear and non-nuclear disaster.

- The needs for additional support and resources among local disaster-response organizations.

- The public's interest in, and responsiveness to, information about disasters which have recently occurred in a given community.

Civil Defense Research Applicable to Multiple-Hazards Approaches

Several elements of the Civil Defense effort have led CD planners, researchers, and program managers to devote increasing attention to the potential for effective civil defense activity in countering the effects of a variety of non-nuclear hazards, including natural disasters and environmental problems. Much of the research on a hypothetical nuclear disaster, it must be remembered, is based on analyses of natural and wartime disasters, ranging from medieval famines to civilian defense efforts in World War II. For many years, OCD has also supported quick-response studies of disasters as they occur. The agency should be well prepared to apply its knowledge and capabilities in the area of natural disaster.

A still more important source of disaster-relevant knowledge has been the OCD effort to take account of the overall impact of disaster on society. Occasioned by the need to define nuclear disaster without much historical experience, this OCD effort has laid the ground work for a truly comprehensive approach to the identification and measurement of disaster impacts and the comprehensive planning of disaster-response activities. Among the major or more general findings to emerge from this research are the following:

- Studies of massive nuclear attack have demonstrated in considerable detail the ways in which disaster can have secondary and derivative impacts throughout the social system, and researchers have been forced to make explicit many of their assumptions about the interdependencies among the institutions, organizations, and individual and group behavior patterns in the society. As a result, Civil Defense planners have become more sensitive to the total impact of a disastrous event -- effects extending to regions far removed from the point of impact, to sectors of the economy and society not directly affected, and over prolonged periods of time.

- Analyses of behavior and social organization under stress have established many commonalities in behavior occasioned by various forms of disaster, with implications for pre-disaster preparations and training and post-disaster communications and organizational efforts.

- The organization of disaster-response activities can now be systematically addressed in ways that reflect a relatively sophisticated view of the total range of impacts and the necessary countermeasures, as opposed to responses geared to particular organizations and their customary modes of operation.

In sum, the effort to study an instance of "total" disaster -- a nationwide nuclear attack -- has produced a considerable body of information bearing on the comprehensive assessment of other forms of disaster, including the "total" range of effects and the "total" set of actions and communications required to counter those effects in a complex society. This knowledge and the attendant methods can substantially augment the capabilities of American communities to cope with the natural-disaster, environmental, and other hazards which periodically threaten them.

A Conceptual Approach Based on Communalities in Disaster Effects and Responses

A comprehensive approach to disaster preparedness would involve appraising various forms of disaster in light of such factors as:

- their relative probability of occurrence;
- their relative severity and costs to society or the community; and
- the potential for countering their effects or reducing their impacts and costs.

On the basis of such considerations, it is reasonable to expect, benefit-cost ratios could be derived for alternative expenditures for disaster preparedness. Furthermore, the multiple uses of given resources could be appraised against a variety of disaster contingencies. A concept developed on the basis of such factors should provide useful guidance for comprehensive preparedness planning at the local or other levels.

Nuclear disaster does not, however, fit neatly in such a concept. To cite only two dimensions, the probability of nuclear disaster would be considered by many to be unknown or very small, while its impact and costs would be judged almost incalculably high. An alternative means is needed for treating resource investments to counter nuclear disaster. At least part of this problem can be resolved by accepting as a given the Congressional mandate to develop countermeasures for the nuclear attack contingency. Comprehensive planning for disaster, then, would include all measures required to deal with a nuclear situation and priority measures derived from an assessment of other disasters and potential responses.

Carrying the analysis a step further, priority measures for dealing with nuclear disaster can be inferred from the event itself -- without reference to other forms of disaster or preparedness activities. A

comparison of (1) priority nuclear preparedness measures and (2) priority measures for dealing with other forms of disaster should indicate a substantial overlap between the two sets. It is the area of overlap -- the priority measures commonly applicable to nuclear and other disasters -- which would be the logical focus of a multiple-hazards approach to civil defense.

A straightforward presentation of the research and planning steps in such an approach would include the following steps:

1. For non-nuclear disasters, describe the major hazards for which a community should prepare, the existing capabilities to respond, and additional (priority) needs for organizational capacity, personnel, and resources.

2. For nuclear disaster, describe the potential direct and indirect effects on the community, including potential requirements to assist other communities, and the resulting (priority) needs for organizational capacity, personnel, and resources.

3. Establish CD priorities for those measures which support both nuclear and non-nuclear preparedness.

The extent of overlap between priority measures for dealing with nuclear and non-nuclear disaster would be expected to vary across communities, depending on their "targetting" characteristics, present resources, and so on. Thus, a community expected to receive only fallout effects might find that its nuclear preparedness priorities include: provision of fallout shelters; preparations to assist other communities with fire, police, and health facilities or personnel; and preparations to double or triple the community's population so as to utilize its public utilities and housing to support survivors from other areas. The same community's multiple-hazards priorities might include: provision of long-term emergency shelter for tornado victims; plans to provide fire, police, and health facilities to support other communities; and long-range development planning to insure

against the emergence of pollution or public health problems. The actual measures undertaken to meet both sets of priorities might include such diverse steps as: increasing the degree of coordination among law enforcement and health agencies; provision of an Emergency Operating Center to improve the communications capacity of several agencies; developing volunteer staffs to operate public facilities used for emergency shelter; or inclusion of special requirements in zoning or building codes.

Not all of the priority measures for nuclear and other disasters will overlap, of course, but some degree of overlap should allow the development of continuing relationships between agencies and planners concerned with each general form of disaster. The approach sketched here should then suggest trade-offs between the two categories of preparedness activity -- for example, a community or region might agree to build additional fallout shelters or develop "basement-sharing" plans in return for an emergency communications center needed by the fire department.

In summary, the research and planning approach sketched above would be designed to guide the development of institutionalized, comprehensive disaster-readiness organization at the community level. Such an arrangement would encompass existing formal organizations, especially governmental units, working together in a framework of routine inter-organizational contacts, communications, and inter-personal relationships. The above-described conceptual approach to determining overlapping priorities is designed only to provide reference points for those involved in such arrangements. A methodology for determining priorities is needed to insure that bargaining relationships at the local level do not evolve into convenient choices of preparedness measures solely on the basis of immediate (non-nuclear) needs and priorities.

Relations with Local Government and Disaster-Response Organizations

A central objective of any multiple-hazards approach should be the involvement of local organizations and governmental units in comprehensive preparedness planning. Present CD agencies have only haphazardly obtained a degree of involvement and cooperation -- a result which can be traced to the limits on CD resources and the advisory relationship which CD agencies have with other organizations. A more prominent local role for CD agencies could result from any of the following changes:

1. Federal, state, and local CD agencies could be given greater authority *vis à vis* other organizations -- an unlikely development.

2. CD agencies could be given greater resources and therefore greater leverage on the actions of other agencies and organizations -- equally unlikely in the near future.

3. CD agencies could become active in disaster-preparedness efforts of local concern, and utilize both public support and inter-agency involvements to produce a higher level of preparedness.

The third course appears feasible and is a focus of this report. The two preceding sections were concerned with (1) CD's disaster-relevant knowledge and capabilities bearing on multiple hazards and (2) methods for insuring that nuclear-disaster concerns are not lost in everyday multiple-hazards planning and operations. The present section is concerned with how to establish working relationships with local-level governmental bodies and other organizations.

A comprehensive approach to disaster preparedness or multiple hazards may involve almost any organization in the community -- police, fire, and health departments; voluntary organizations; governing or planning bodies; local offices of federal agencies, such as the Army's Corps of

Engineers; or any of a multitude of private firms or public groups. The present discussion is limited to public agencies and governments at the local level, but should be applicable to many other organizations as well.

Local agencies and governments may often be parochial or "elitist" in their approaches to particular tasks which have traditionally been the purview of a given organization or office, but increasingly these bodies have been forced to cooperate more extensively with other agencies of government. In an increasingly urban and interdependent society, it has become increasingly difficult to define or address the problems of public health solely within the health department's domain, or the problems of the juvenile delinquent solely within the confines of the criminal justice system. Similarly, in the case of disaster, it has become apparent that the response to a flood does not stop with levee-building, enforced evacuations, emergency shelters and feeding stations, and typhoid innoculations. Disaster attacks a population and community in many ways, and the public is increasingly prepared to judge the adequacy of relief measures in broad context. If civil defense can become identified with the overall response, CD agencies will automatically have greater leverage in their dealings with other organizations.

A second potential source of influence over existing agencies derives from their needs for resources -- particularly, grants under various federal programs. The Intergovernmental Cooperation Act of 1968, as well as other federal statutes, represents an effort to encourage cooperation among local governing units and administrative offices by tying their eligibility for federal grants to their participation in comprehensive planning agencies. For nearly one hundred federal programs, grants to localities are now contingent on their favorable review by state

and multi-county comprehensive planning agencies. If a local application is not deemed consistent with the comprehensive plan for the area, it is not approved. This review mechanism, which is now operating routinely in many states in the areas of law enforcement, health, housing, and other projects, will undoubtedly find wide application in the near future.

This movement toward comprehensive planning reflects a recognition of the growth of social complexity and the resulting need for greater coordination among traditionally separate governmental functions. A parallel trend is apparent in studies of the impact of disaster on an increasingly interdependent society. A reasonable response would appear to be comprehensive planning to prevent or counter the effects of disaster. Given OCD's knowledge of disaster, should not this agency become a central force in the development of comprehensive preparedness planning? If state and local comprehensive plans were to include truly meaningful preparedness components, CD agencies would have a sound basis for interacting with many other local agencies concerned with disaster prevention, relief, and recovery.

Community Involvement in Preparedness Planning

The establishment of formal relationships with other organizations can be facilitated by efforts to cultivate public interest in comprehensive preparedness planning and disaster-response activities. Such efforts should include:

- Publicized assessments of disaster-response actions when disaster has struck a community.
- Public information and instruction bearing on behavior and organization in disaster.

A multiple-hazards approach would allow CD and other agencies to describe their recent responses to disaster in a timely manner, when the public may be intensely interested in such information. Such efforts could also support the development of regular relationships among formal organizations. A systematic approach to such efforts might look something like the following:

1. OCD and other CD agencies could draw on their considerable experience to outline procedures for describing the approach of a disaster, its effects, and the measures taken to counter it.
2. Local CD personnel, using the approach and procedures outlined above, could chronicle a particular disaster in a community.
3. Agencies and organizations involved in the disaster-response effort could be asked to describe their needs for additional resources or other supports which would have allowed them to respond more effectively in that disaster situation.

4. The description of what happened and what steps would have served to reduce damage could be presented to the public as a routine report on the disaster.

Something approximating this process is now normally seen in the community's newspapers during the post-disaster period. A systematic treatment and a report on needs for additional resources, presented in one document, should add considerable weight to the conclusions reached. And this process should itself encourage participation in comprehensive planning by disaster-related agencies and organizations. (Eventually, of course, such reports could acquire a certain stature and visibility, lending themselves to the exertion of leverage on particular organizations involved in comprehensive preparedness planning.) These reports could also serve the function of public education about the complexities of preparedness activities, the numerous groups and organizations involved, and the opportunities for rationalizing the overall response to disaster.

Standardized reporting on local responses to disaster and needs for increased resources would also contribute to disaster preparedness planning at higher levels of government. OCD's role in such a program could include, in addition to the development of standardized reporting procedures, the preparation of regional and national summaries of the preparedness effort and reported needs for support.

The second approach to community involvement -- public information and instruction -- represents an extension of existing CD training and related programs. A critical precondition for improved public information programs is material on nuclear and non-nuclear disasters that is written in the language of the layman. Part II of this report attempts to illustrate how such information might be presented to the intelligent adult. Other

CD efforts currently under way are seeking to describe disaster effects at other, lower reading levels, including those of school children. The incorporation of multiple-hazards discussions in these materials will substantially increase their interest for most audiences.

Better descriptive and training materials alone, however, can not be expected to generate or sustain public involvement and interest in CD activities. In recognition of this fact, OCD researchers have sought to identify civic organizations and key communicators who can encourage public discussion and support. A noteworthy result of this research has been increased attention to the multiple memberships of citizens active in a number of civic groups -- people who can add a multiplier effect to public educational efforts. Another avenue for possible development involves efforts to relate CD interests to those of community groups and populations concerned with environmental and social problems. Further exploration of all of these possibilities is warranted, particularly in cases where informational activities serve to increase the impact of citizens already interested in nuclear preparedness.

Sustained citizen involvement on a large scale, however, is likely to require a meaningful interaction between citizens and local governmental agencies. The limitations on efforts existing outside formal channels are apparent: Thus, attempts to relate to social concerns can serve to diffuse CD energies as well as generate support. And when local causes become popular enough to command wider attention, they are likely to be "captured" by organizations other than CD agencies. In the final analysis, public information programs are most likely to be effective in conjunction with active involvements in local governmental organizations. Again, the comprehensive planning agencies appear to be a suitable vehicle for encouraging greater public interest and involvement.

At a more general level, as well, comprehensive multiple-hazards planning appears to offer the best opportunity for CD agencies to impact local opinion and local decisionmakers. The society is witnessing an increased public involvement in planning bodies and a widely perceived need for closer coordination among all of the public service sectors and agencies. That same society has reached a level of affluence which allows us to devote substantial resources to the prevention or control of disasters. A population which has so overwhelmingly bought the concept of life insurance should be prepared to support comprehensive planning to avert the multiple hazards which periodically threaten American communities.

Summary and Recommendations

The report briefly discusses a number of the dimensions which should be considered in developing a multiple-hazards approach to disaster preparedness. The report assumes that an adequate level of preparedness is a function of the organizational capacity and resources of formal organizations and public knowledge of the actions required to prevent, relieve, and recover from the effects of disaster. The present CD effort aimed at nuclear preparedness is described as inadequate for the following reasons: public support is minimal; CD relationships to other organizations are advisory only; CD resources are limited.

In light of these factors, a higher state of readiness for nuclear disaster is dependent, above all, on increased organizational capacity in OCD itself, other CD agencies, and other arms of local government and administration. A multiple-hazards approach can result in increased capacity to counter the effects of nuclear disaster. Such an approach should be developed on the basis of at least the following considerations:

- Civil Defense has developed a substantial body of knowledge about disaster and how to prevent or cope with it. This knowledge should be used to develop a comprehensive planning approach to disaster preparedness at the local level.

- In light of the many communalities in response to nuclear and non-nuclear disasters, a considerable number of preparedness measures can be defined to meet both forms of disaster, and the effect of such efforts should be reflected in greater formal organizational and public support for CD at the community level.

- Research and planning should provide guidance as to priorities in the preparedness efforts to counter

nuclear and non-nuclear disaster -- to insure that preparations for nuclear attack are not brushed aside in everyday activities at the local level.

- Civil defense should be tied to comprehensive planning at the local and state levels -- and the Office of Civil Defense should explore means for incorporating CD components in existing comprehensive plans.

- Civil defense should develop means for increasing its visibility at the local level -- in particular, CD agencies should be prepared to publicize needs for additional preparedness resources in the wake of various kinds of disasters, while public opinion is responsive and local agencies are acutely aware of their needs for additional resources.

- Civil defense should utilize its existing knowledge of behavior and organization in disaster to familiarize the public with appropriate, responsible roles which citizens should fill under various, meaningful contingencies.

In their relations both with formal organizations and the general public, CD agencies should seek to translate the considerable existing knowledge about disaster into terms and actions meaningful to the layman. Part II of this report represents an effort to provide such a translation in the very technical and specialized areas of psychological and social effects.

Part II

HUMAN BEHAVIOR IN RESPONSE TO DISASTER

"Disaster" is a topic that recurs frequently in the historical accounts of communities, nations, and whole peoples. Calamities of one sort or another are predominantly recorded in many early religious writings, and scholars often point to the effects of disaster on the strength and fate of nations. It is often argued that a widespread disaster, such as the plague or Black Death which struck Europe in the late Middle Ages, can cause profound and far-reaching changes in the organization of society -- for example, by killing so many laborers that the wages of survivors are bid up to substantially higher levels. In whatever form it occurs, disaster and the dread of its effects have been prominent among the concerns of thinking people for centuries.

Man's drive to anticipate and avoid disaster, or control its effects, has gained momentum as scientific and technical advances have provided ever-increasing resources with which to reduce and combat the effects of disaster. (These same breakthroughs, of course, have also increased the probability that certain forms of disaster will appear -- nuclear warfare, for example, and advanced stages of environmental decay resulting from pollution or deforestation.) Efforts to reduce the likelihood or impact of disaster have themselves taken many forms. Thus, the construction of levees and dikes is aimed at preventing a particular kind of disaster. And the development of insurance institutions has allowed us to "smooth out" at least the financial impact of certain disasters, such as shipwrecks, or fires in our homes, which we know from statistical studies will occur with a certain frequency in spite of efforts to avoid them. Yet another means for coping with calamity is the disaster-response organization, such as the Red Cross or a city's fire department,

which provides trained personnel and resources for use in helping people affected by disaster in one or more of its forms. In short, people have continuously sought to develop better methods for forecasting where and when disaster may strike, and for preparing individuals and organizations to minimize its effects and recover quickly.

Despite man's long-standing concern over disaster, it is only fairly recently that scientists have systematically studied the subject. In part, this belated attention to crisis conditions reflects the development in the social sciences of better methods for studying such behavior. Equally important, probably, is the recognition that as industrial society becomes more complex, a disaster occurring in one region or sector may have far-reaching effects throughout the larger population and the nation as a whole. Furthermore, certain types of disaster, such as large-scale nuclear war, are potentially so devastating as to require the most careful study of their potential impact. Finally, there is a convincing moral argument: Many people believe that a society which has reached an advanced technological stage should commit substantial resources to understanding and combatting the threat that disaster poses for the individual citizen and his family. For all of these reasons, the past decades have seen greatly increased attention to the systematic study of disaster conditions.

Only in recent decades have scientists initiated systematic studies of human behavior in the face of disaster. A substantial portion of this work has been supported by the United States Office of Civil Defense, which is administered in the Office of the Secretary of the Army. The major impetus for such studies, undoubtedly, grew out of the recognition that modern nuclear warfare poses the threat of disaster on a scale unprecedented in human history. The possibility that a large proportion of the country's population could be killed or injured, quite suddenly, prompted many questions about how the survivors would behave and how,

or whether, the nation could recover from such a catastrophe. As might have been expected, these research studies have led to a much more sophisticated knowledge of disaster effects in general -- knowledge which is applicable in many "non-nuclear" disasters which people must face and from which society also seeks to recover as rapidly and efficiently as possible. This booklet is itself an example of how findings from the study of nuclear disaster may be translated into useful knowledge about other forms of disaster.

The following sections of this chapter summarize a number of the major research findings bearing on the human response to disaster. It will be noted that a number of the popular conceptions about disaster -- such as the image of people "pitching in" to help others, do stand up under scientific analysis. On the other hand, many widely-held beliefs, such as those concerning the nature of "mass panic," do not necessarily reflect sound knowledge, and the fact that people expect such conditions to occur may in fact make their occurrence more likely and more disruptive than would be the case if people did not hold these beliefs. One purpose of this chapter is to dispel erroneous expectations by providing greater knowledge of behavior as it has been observed in many disaster settings.

The topics briefly discussed in this chapter are outlined below:

- People tend to respond to disaster and the threat of disaster in a positive, constructive way, assuming they have knowledge of what is happening and what actions would be helpful.
- Flight is a frequent response to a threatening situation and is often a reasonable response to that situation.
- Mass flight in the form of "mass panic" is not a frequent response to disaster conditions, and the term "panic" is often used inaccurately by people anticipating harmful effects of disaster.

- People who experience disaster, or see themselves as threatened by disaster, often go through periods of emotional disturbance and may show physical symptoms resulting from tension, fear, or anxiety.

- People involved in disaster can assist others who are having psychological problems -- and thereby assist the overall effort to deal with the emergency.

- People facing disaster tend to re-order the priorities they place on activities designed to meet their personal needs, emphasizing first of all their personal protection and the well-being of the immediate family.

- Role conflict is a commonly observed phenomenon among people threatened by disaster, and can seriously affect the performance of relief and recovery activities (for example, when a key official finds himself torn between making sure his family is safe or performing his assigned duties in the relief effort).

- A maximally effective response to disaster is first of all dependent on two general kinds of knowledge in the minds of the affected population:

  - Knowledge of the disaster or threat, per se, including an understanding of the behavior of other people they see around them.

  - Knowledge of what steps or activities are required to deal with the situation.

- Organization is a second essential element of a maximally effective response to many forms of disaster.

- Communication is a third necessary element of preparation for and organized responses to many forms of disaster.

- Efforts to prepare people and communities to deal with possible disaster situations are often frustrated because most people cherish the delusion that disaster is something that always happens to someone else.

- People tend to be quite selective in their expectations of what constitutes a disaster threat, readily acknowledging the need to prepare for certain disasters by engaging in specific activities, but often refusing to think seriously about the implications of other disaster threats which are generally thought to be "real" and grave possibilities.

- The capability to prepare for and recover from disaster is in many respects a general capability, not necessarily limited in its application to only one form of calamity, and careful planning can produce a state of general preparedness to cope with many of the possible hazards which people may be called on to face.

- A generalized capability to cope with disaster does not necessarily involve a special disaster-response organization, since many existing organizations can be utilized in a variety of disaster situations.

- In a complex industrial society such as the one in which we live, a concerted and well-organized approach is necessary to insure maximum recovery from widespread, large-scale disasters.

The Constructive and "Cooperative" Response to Disaster

The study of human responses to disaster indicates that most people respond to the emergency in a constructive fashion, provided they have reasonably accurate information or knowledge of the situation. In many forms of disaster, particularly those occurring in less complex societies, the required actions are more or less apparent. Thus, when a village has been flooded, it is often obvious that survivors who have lost their homes require shelter and food, and people from nearby homes or communities are apt to provide these necessities, spontaneously, where organized relief efforts have not taken shape. In general, people experiencing the direct effects of disaster have tended to "pitch in" and

help their neighbors. They have not, by and large, engaged in selfish and competitive behavior designed to take personal advantage of the situation. Most students of behavior in disaster do not believe that a massive disaster would produce a "war of all against all," as some overly-dramatic authors have suggested would occur after a nuclear attack.

It is also true, however, that the constructive and cooperative response to disaster does not endure for a long period of time. The response to a large flood in Holland is suggestive: Immediately after the disaster, residents of the small towns affected were observed to work together without thought of payment for labor or goods. Candles, food, and other available supplies were often dispensed to the needy and to relief workers free of charge by innkeepers and store owners. At the end of approximately one week, however, these same articles were again being sold for profit as in normal times. In other words, survivors of that disaster tended to behave cooperatively in the immediate aftermath of the crisis they had experienced together, but as the emergency passed, people expected to resume the roles they normally played in society -- perhaps in the belief that the government or special relief organizations should shoulder the longer-term burden of helping those who had been damaged as a result of disaster. In many wartime situations, also, it has been observed that people develop patterns of cooperative activity while the danger (perhaps from air raids) is urgent and immediate. But people experiencing the feeling that "we're all in this together" also expect to resume normal and more competitive kinds of behavior when the danger is no longer seen as immediate. After the emergency passes, people tend to expect that more formal -- rather than spontaneous -- approaches to relief be provided by government or other organizations.

The major implications of these findings would appear to be: (1) authorities can often rely on a very positive initial response to disaster from the populations affected; (2) this public reaction is dependent on the

population's having sound information about what has occurred and what activities will be helpful; and (3) authorities should take advantage both of the energy that people will spontaneously exert on behalf of their neighbors and themselves, and of the brief period during which more formal, longer-term recovery efforts can be organized and put into action.

Flight as a Response to a Disaster Threat

The interpretation of flight behavior has been surrounded by a considerable degree of confusion, primarily because flight is often associated with panic in the public mind. Flight behavior is indeed a part of panic, but the reverse is not necessarily true: flight does not in itself imply panic, and the person who witnesses flight behavior on the part of others should not automatically assume that those who are fleeing from a threat are behaving irrationally.

Flight behavior may take the form of running, driving fast, jumping, or otherwise removing oneself as rapidly as possible from a threatening situation. Frequently, flight is the logical response to a situation. If one's car is stalled on the tracks at a railroad crossing and the crossing signal indicates an approaching train, the most sensible action the driver could take would be flight. In other words, flight is often a functional and adaptive response to a threatening situation -- it is not random or helter-skelter activity, but a means of removing the person from a threatening situation. Whether or not the person in flight is also experiencing panic, his action often makes sense.

Panic as a Response to a Threatening Situation

"Panic" is a term which many people use loosely and inaccurately, often applying it to situations which are not examples of panic in the scientific sense of the word. Thus, observers of such events as civil disorders, stock market crashes, cattle stampedes, and rock festivals have referred to "panic" behavior among those involved. What we are discussing here is a much more carefully defined form of human behavior -- panic has been defined by the Committee on Disaster Studies of the National Research Council as

> "...highly emotional behavior which is excited by the presence of an immediate severe threat and which results in increasing the danger for the self and for others rather than reducing it."

The person who engages in panic behavior has normally seen a highly threatening and dangerous situation developing, has ruled out any response to the threat except escape, and has essentially taken a totally self-centered approach to avoiding the danger he sees. Experiencing fear acutely, he has lost his ability to consider and weigh any response other than flight. Even so, it should be noted, his behavior is not "blind" -- that is, he does not run into a wall but focuses on the escape path he sees as open to him. And his panic-flight behavior may be quite functional in that it removes him from the danger. On the other hand, the person takes no account of the consequences of his actions and does not judge whether or not they may be injurious to himself or others.

The conditions prominently associated with panic behavior are apparent in the oft-cited example of a crowd escaping from a burning theater. The individual perceives a threat that is imminent; the escape routes are limited; escape routes are blocked or jammed, and communication among the panic-stricken people and others with cooler heads

has broken down. In those instances where panic behavior has produced very harmful effects, especially the trampling or smothering of people in an excited crowd, these conditions have existed. In most disaster situations, it should be noted, the combination of these conditions is not likely to occur -- a fact which explains why many students of disaster do not believe panic has a high probability of occurrence.

One important point deserves emphasis, however. "Panic" is a much-talked-about phenomenon among people who know little about it. The fear of disaster, increased by the fear of panic, may in fact produce panic. This possibility suggests another important reason why people should be familiar with disaster and the types of behavior they may see around them in times of crisis.

Emotional Reactions to Disaster and Threats*

Some people remain relatively calm when faced with disaster and stressful or threatening situations, but most of us show some reactions to the "pressure" we feel. Our muscles may be tight or "tensed up," our hands may tremble, or our speech may become less clear and understandable. Physical reactions may include sweating of the hands and feet, nausea or actual vomiting, frequent urinary discharges, rapid heart beat, or being "out of breath." We may be unusually sensitive to noises, irritable, restless, sad or tearful, resentful, or even be inclined to laugh too much. The disaster victim may be "stunned," apathetic, and feel quite helpless; or he may be very active, self-centered, and want to flee from the situation. Especially during the period immediately after

*This and the following sections are drawn largely from the publications "Psychological First Aid in Community Disaster" and "Psychological Behavior During Disasters," prepared by the American Psychiatric Association Committee on Civil Defense.

disaster has struck, some people may be unable to move, think, or be concerned with others.

Reactions such as those described above are more or less normal responses to disaster. They usually indicate that the individuals involved are temporarily not functioning with full effectiveness. Only when such behavior lasts for some time after the threat has passed should these reactions be taken to indicate problems of coping with the situation. The person who sees these reactions in others should not leap to the conclusion that they are reacting abnormally -- most survivors who react in these ways will quickly recover their effectiveness without assistance.

Some survivors do not recover quickly and may need assistance, even though they are not physically injured. For example, some people may truly panic -- people on a sinking ship have been seen to rush wildly toward a few lifeboats, while ignoring empty lifeboats nearby. Or survivors may be hysterical, running wildly about or weeping uncontrollably -- physically uninjured survivors who have seen their families or friends badly hurt sometimes respond in this way. Other survivors may be depressed, numb, unable to take part in activity, and unable to help themselves during the period after disaster. Still others react in the opposite direction, with a flurry of activity or talk, over-confidence in their own ability to deal with the situation, and a continuous stream of suggestions without real value. Any of these forms of behavior may interfere with the efforts of other survivors to cope with the situation. Equally important, others who observe this behavior may themselves become unnerved or psychologically incapable of effective action. Clearly, then, it is important for people to understand the behavior they see in others and to know how to deal with that behavior until professional help arrives.

Assisting Survivors Who Have Emotional Problems

When disaster strikes, the ability of people to recover often depends, first, on the presence of mind and intelligent efforts of the survivors themselves. In many disaster situations, it is necessary for the able-bodied survivors to work together to combat the immediate effects of disaster. This work may include such diverse tasks as comforting injured people, moving women and children out of dangerous areas, clearing roadways to let emergency vehicles pass, salvaging as many goods as possible from damaged homes or buildings, or setting up emergency camps where people who have left their homes may be housed, fed, and given medical attention as needed.

The amount and kind of work required of survivors will of course vary with the circumstances. In some small-scale disasters, these activities of the survivors may last only a few minutes or hours -- until outside assistance arrives in the form of doctors, ambulances, fire trucks, etc. In other situations -- hurricanes, blizzards, floods, or a nuclear attack on a large city -- the disaster itself may cut off outside assistance for a number of days. And large-scale disasters (especially nuclear attack) may also cause so many casualties that medical and other relief workers are in very short supply. In other words, disaster often places a responsibility on able-bodied survivors to perform certain tasks in order to help themselves and others. If survivors are to organize themselves and do the necessary work, they must be able to maintain a stable emotional climate in which the needed work can be done in an intelligent and organized way.

The requirement for a stable emotional climate among survivors -- if they are to work as effectively as possible to cope with the disaster situation -- has several important implications. For example, rumors

must not be allowed to cause confusion or increase fear or produce additional emotional disturbance. People suffering normal reactions from disaster must often help each other to return quickly to a state of effective, intelligent functioning. People suffering abnormal degrees of emotional disturbance must be (first) comforted, (second) prevented from upsetting others or interfering with relief work, and (third) helped to return to a state of effective functioning in which they can assist other survivors in coping with the disaster and doing the things that need to be done. To the extent that the survivors themselves can contribute to the maintenance of a stable emotional climate, all other elements of disaster-relief organization will function more effectively to save lives, relieve suffering, and insure recovery from the disaster.

The non-professional can be extremely helpful to persons experiencing psychological disturbance in a disaster situation. The following guides may be helpful should you find yourself in such a situation.

1. Accept every person's right to have his own feelings. If a person is emotionally distressed, concentrate on finding out how he feels and do not attempt to tell him how he should feel. Do not overwhelm him with pity, but show that you are concerned with seeing the disaster as he sees it -- and with understanding the things he is worried about, such as the welfare of his family.

2. Accept the disturbed person's limitations as real, and do not tell him such things as "it's all in your head," "snap out of it," or "pull yourself together." Do not allow yourself to be resentful of another survivor's emotional handicaps, even though you may feel he should be operating as effectively as you are.

3. In talking with the person, attempt to discover things which he is capable of doing, even in his disturbed condition. Attempt to get him involved with others in performing necessary tasks, even quite simple jobs such as handling messages or cleaning up the area where your relief team is working. However simple

the task, make the disturbed survivor feel a part of your group or team -- often, his sense of valued participation will result in rapid recovery.

4. Recognize your own emotional limitations and appraise your own emotional level. Frequently, the very fact that you have prepared for a possible disaster (for example, by studying this booklet) will help you to handle your feelings when disaster strikes. Thus, if you have taken steps to protect your family from possible hazards, you will be less likely to feel guilty when disaster strikes the family -- and better able to work effectively instead of simply feeling guilty and ineffective.

Keep in mind that disaster can also have a good effect on human motivation to help others and to cope with the situation. The involvement of all able-bodied survivors in constructive group activity is often the best way to help emotionally disturbed people return to normal functioning.

Personal Values and Priorities in Disaster Situations

Studies of previous disasters in the United States indicate that the victims respond by shifting the priorities they attach to various activities. Above all, the key value of most survivors is to preserve the lives of the "primary group" or immediate family -- usually limited to parents and children, but possibly including some other close relatives, friends, or neighbors. Other values -- for example, owning private property, holding a job, and maintaining social status -- become relatively less important during the period when disaster is approaching or after it has occurred.

Observations of behavior in previous disasters suggest that the following generalizations are true of most survivors:

- One of the first steps of survivors is to try to establish contact with members of the immediate family.

- When families are separated in a disaster, efforts to re-unite them have a very favorable effect on the members' emotional stability and their ability to cope with the disaster.

- Following a disaster, most husbands, fathers, and other heads-of-families tend to spend time looking for their families, providing for them, and insuring their safety at the expense of their other duties or job obligations.

- Next to the family, the neighborhood tends to be an important focus for the activity or work of survivors, who may take part in local relief work well before they would leave their families for a distant job not related to the immediate problems of the neighborhood and family.

This great emphasis on the family suggests why most formal organizations stop functioning when disaster strikes: Unless the organization can help fight the disaster, and unless its members also feel secure in leaving their families to report for work, the organization simply does not have enough leaders or members available to operate. Faced with an emergency, people are often forced to choose between their role as a family member and their role as a worker or member of some organization. As long as survivors are unsure of their family's safety and well-being, they are likely to resolve this "role conflict" in favor of remaining with the family, or at least staying in their home neighborhoods.

Some Implications of Role Conflict

Each of us normally plays a number of different "roles" in social life -- for example, a man may play the roles of father, shop foreman, volunteer fireman, and member of a club, social organization, or church congregation. Role conflict occurs when a person must choose between two roles which he normally plays. As we noted in the preceding section, the most important instance of role conflict in disaster occurs when the

survivor must choose between (1) searching for his family or staying with them to insure their protection and (2) reporting to his regular job or an assigned position in a relief organization.

Role conflict is most significant in the large-scale disaster. To cite the extreme case, a very widespread disaster -- such as a nationwide nuclear attack -- could lead many survivors around the country to focus their attention on family maintenance activities such as obtaining food, water, medical supplies, house repairs, etc. As a result, only a small percentage of the people might be available to do the work of the larger society and economy. Yet, our economy does not rely on self-sufficient family units to do its work; instead, work is performed through complex organizations, with each individual normally doing a very specialized part of the production task. Isolated family units cannot produce gasoline, trucks for hauling food, or trains for carrying frozen foodstuffs to city markets. In short, people must not drop their roles in the economy for very long, or the goods and services that support life will not be produced and distributed.

This economic result of role conflict is probably an extreme example (although some experts believe a nationwide nuclear attack could produce such a breakdown in working habits). In most disaster situations, the survivor's focus on his family and home does not take him away from the job for more than a few days. And usually there are other workers, from outside the disaster area, who are available to operate relief and emergency organizations. Furthermore, the personnel of disaster-ready organizations (fire and police departments, hospitals, etc.) are both trained and psychologically prepared to cope with the role conflicts they may feel as individuals.

The tendency for disaster victims to focus on their families and neighborhoods has important implications when we are organizing relief

and recovery work. In the first place, the population of the United States is extremely mobile -- at any given time, family members may be widely separated from one another -- and the occurrence of disaster can prompt countless telephone calls and efforts to travel across town or across the country to check on family members. These communications and movements can often interfere with organized emergency operations; on the other hand, anything we can do to re-unite families or establish communications among family members will almost certainly have favorable emotional effects and allow survivors to recover more quickly from the disaster. Perhaps most important in the large-scale disaster, especially nuclear attack, efforts to re-unite and insure the safety of families will reduce the anxiety felt by survivors and allow them to return more quickly to their formal jobs in relief work and the national economy.

Knowledge of Disaster Among the Affected Population

Many of the preceding sections of this chapter have described particular aspects of a disaster situation and attempted to explain why people in such a situation may behave in certain ways. Other sections of this booklet describe particular kinds of disaster and the steps that individuals should take either to reduce the threat or to cope with the event in an intelligent and helpful way. When disaster strikes, the knowledge of how to cope with the situation is usually the single most important factor in saving lives and minimizing damage.

Knowledge of disaster effects and the needed responses to them takes many forms. Certainly, it includes the citizen's awareness of the kinds of disasters that may occur in his neighborhood and part of the country. What may happen here if a hurricane strikes, or a nuclear power

plant "leaks" radiation, or a trainload of chemicals explodes? Disaster-related knowledge also includes an awareness of at least elementary first aid, including the "psychological first aid" described earlier in this chapter. At the most general level perhaps, knowledge of disaster is a matter of understanding how and why people may behave in various ways under great stress and pressure, so that you can help them to act constructively and prevent actions that may harm themselves, harm others, or interfere with organized efforts to relieve suffering and remove the danger as quickly as possible. In all cases, of course, disaster-related knowledge includes an awareness of the organizations which are working to cope with the disater and how you may most effectively assist those organized efforts.

Organization in Response to Disaster

Organized effort is usually more productive than individual effort, in disaster relief as well as in most other forms of activity. Many of the functions required in a response to disaster are quite specialized -- obvious examples are the work of the surgeon, the psychiatrist, the fire fighter, and the manager of the mass transit system. Careful organization is required to insure that these varied skills and capabilities are brought to bear quickly and where they will do the most good. Many disaster-ready organizations -- police and fire departments, military units, etc. -- are prepared to organize relief efforts quickly to insure that casualties are treated in time, food and clothing are distributed, and so forth. The citizen's responsibility includes supporting these efforts -- and especially in large-scale disasters it may include organizing ad hoc responses to disaster during the period before professional help is available or accessible.

A less obvious reason for developing effective, organized responses to disaster is related to the earlier discussion of the survivors' tendency

to focus on matters concerning his family, home, and immediate neighborhood. Given this automatic tendency of survivors to deal with their immediate, pressing problems and fears, there must be others in a position to view the disaster in larger perspective. For example, flood victims in a local situation may be working hard to strengthen levees and house people who have lost their homes, but they need information about what is happening in other communities around them; their local efforts may be meaningless if the flood waters are expected to rise much higher, perhaps isolating and eventually overflowing their community. In other words, the disaster victim often cannot be allowed to focus only on his immediate situation. Disaster itself tends to isolate people and communities -- both physically, as when telephone lines are down, and psychologically, as people focus on their immediate, visible problems -- and a larger organization is often required to assess the overall disaster situation and respond to it.

Communication

At least three general types of communication are important aspects of an intelligent response to disaster. These types are:

- communication within and between disaster-response organizations such as civil defense units, police and fire departments, or hospitals and ambulances;
- communications among the survivors themselves;
- communications between official organizations and the public.

The most obvious requirement for communication is the one which is usually met quite routinely. Formal disaster-ready organizations are usually equipped with radio communications equipment and trained in the

use of such equipment to keep all units informed of what is happening, where they are needed, etc. Even with such preparation, however, the many formal organizations which may attempt to respond to a major disaster are often not experienced in working together. That is, a city's policemen and firemen may be accustomed to working closely together to meet localized situations, but they are often not experienced in coordinating their operations with those of military units, emergency housing authorities, or others who may be called in to meet a major disaster. Some disaster-ready organizations may also be handicapped by a shortage of personnel in the event of city-wide or larger emergencies which prompt a number of their personnel to remain with their families. In light of these possibilities, disaster-ready organizations are often urged to develop better communications systems to insure they will be able to coordinate with all other organizations responding to a massive disaster.

Needs for the second type of communications -- those among survivors themselves -- have received relatively little attention from officials charged with disaster-response duties. Yet the psychological effects of disaster suggest how important such communications may be. To the extent that people refrain from participating in organized activity until they have contacted family members and made sure the family is safe, any effort to assist in such communication will have a highly favorable effect on the survivors' motivation to take part in organized and official relief work. Communication among survivors can also be critical in another way. False communications or rumors can have very disturbing and disruptive effects on people experiencing fear, stress, and "pressure." Both official agencies and survivors themselves should attempt to counter these effects by distributing accurate information about what is happening -- and by pointing out to those who are circulating unsubstantiated information that it may have harmful effects on those who hear it.

Communications from official agencies to the general public normally consist of radio and television announcements describing the disaster and giving instructions as to what people should or should not do. Although such announcements are often necessary and helpful, it should be remembered that every communication will not be interpreted in the same way by every person who hears it. That is, a seemingly innocuous statement may trigger unexpected reactions from people in particular circumstances. It should also be remembered that a general statement applying to a large area -- for example, "few fires have been observed in the city" may appear ridiculous in any particular setting (such as a city block where half the houses are burning). Too many general statements of this type may lead people to distrust other announcements coming from the same source. Finally, survivors and officials must bear in mind that public messages may not reach the people who most need to hear them -- they may not have access to radios or they may be too busy to listen.

The "Delusion of Personal Invulnerability"

Most people tend to think of disaster as something that always happens to someone else. This "delusion" can be quite comforting to people who do not wish to face the possibility of being killed or injured, and it can result in their ignoring or minimizing a warning that disaster is approaching or may occur. This tendency often has a serious result when people refrain from taking preventive measures that could help them survive or reduce the damage they will suffer. It may also affect their behavior after a disaster -- their feelings of personal guilt over not preparing may leave them psychologically less capable of acting effectively during the recovery period.

Perhaps the most dangerous effect of this delusion is seen when citizens refuse to make preparations to deal with disaster. (It is not uncommon for people to become quite angry when they are asked or forced to take measures that would help them deal with this or that form of disaster.) A maximally effective response to major disasters often requires considerable expenditures of money and time beforehand, as well as the detailed planning of disaster-response operations. When citizens do not support these efforts, they are necessarily limited in scope and effectiveness.

Perhaps the best approach to handling these feelings is the one you are taking when you study this booklet. Knowledge about disaster is an antidote for many irrational fears that may prompt our initial reaction to it. As we noted at the beginning of this chapter, man through the centuries has developed greater and greater capabilities to cope with disaster. When we study disaster and learn how (and why) people respond to it in certain ways, we improve our own ability to think rationally and act constructively in an emergency.

"Legitimate" and "Unacceptable" Forms of Disaster Preparedness

At any given point in historical time, the people of a nation and society appear to recognize some hazards as legitimate sources of everyday concern, while classifying other potential disasters as falling outside the scope of such concern. Thus, for many centuries, Western peoples have recognized the need for insurance against the hazards of shipwreck and fires in the home or business establishment. Through much of this period, however, health insurance was not considered practical. Too little was known about disease and epidemics to allow reasonable statistical estimates of their frequency. So people were forced to tremble in

fear of epidemics and "the plague" even while they took a much more positive approach to preparing for other forms of disaster.

In our own time, disaster preparedness has reached new heights of sophistication. We train hundreds of thousands of people in first aid, provide emergency medical kits in many schools and public places, and legally require public swimming pools to have lifeguards on duty. We have elaborate organizations, such as fire and police departments, to cope with various kinds of emergencies. And we routinely provide public information on how the individual citizen should behave in order to avoid or control disaster -- for example, television announcements describing how to "prevent" forest fires, driver training courses and manuals which describe what to do when involved in an accident, and radio broadcasts describing where to seek shelter or medical attention in the wake of a hurricane or flood.

These examples are merely illustrative of many others which you will recall. The point is this: In our society, there are countless methods for training citizens in how to avoid dangers, cope with unusual hazards which may arise, and assist others who are affected by an emergency. Indeed, these communications and this knowledge are so commonplace that they are often taken for granted. So when we are talking about increasing the citizen's ability to cope with disaster (as we are in this booklet), we are simply trying to expand the number of possible disaster situations and conditions in which people will know how to limit the danger and help with the relief and recovery effort.

The first step in preparedness, it was noted earlier, is knowledge of a potential disaster and the behavior required to cope with it. Until people have in mind a realistic picture of what a disaster might involve, they cannot react constructively to it, or even prepare to meet it. Nuclear war is a case in point. Most Americans have very little sound information

about what such a disaster might look like. Lacking such information, people tend to picture a nuclear holocaust only in the very general terms of massive death, horrible effects of nuclear radiation or "fallout," and similarly vague but horrifying possibilities. Consequently, except in a few periods of international tension when full-scale war has seemed at least possible, a nuclear attack and the civil defense measures needed to cope with it have been classified as falling outside the range of possible disasters with which it pays to be concerned. Nuclear disaster has essentially been "defined away" as something too horrible to contemplate and too enormous in its effects for people to cope with.

This approach to nuclear disaster is not necessarily a permanent set of attitudes. Other nations, such as Sweden and (apparently) the Soviet Union, have done much more in the way of preparedness for nuclear attack and recovery. If the past is any guide, we would expect people to become more aware of nuclear preparedness as they gain more detailed knowledge of what such a massive disaster might involve. In the meantime, a population that is aware of a disaster's general effects on behavior will be better prepared to meet all emergencies.

A General Capability to Cope With Disaster

Knowledge, organization, and communication are major elements in efforts to prepare for and recover from most forms of disaster. The ability to cope with disaster, therefore, is not absolutely limited by our knowledge of the specific effects of particular disasters. This chapter has pointed out that knowledge of human behavior under pressure can contribute importantly to any relief and recovery effort, while an informed and emotionally stable population is a good base on which to build effective relief and recovery efforts. The subjects of disaster, disaster behavior,

and the organization of people under disaster conditions are a common basis for all preparedness efforts.

Multiple Organizations in Disaster-Response Activities

Disaster response is not ordinarily a matter of one organization's control of all emergency operations. Preparedness and civilian defense are concepts that do not relate to any single organization. Rather, civilian defense implies a state of readiness on the part of citizens and government -- including many organizations -- to cope with emergencies through intelligent and organized effort. Your knowledge of disaster, your ability to operate effectively under the pressure of disaster, and your support of organized relief and recovery efforts will allow the population as a whole to recover from disaster as rapidly as possible. In any given situation, a variety of functioning organizations may actually direct and implement relief and recovery activities. It is the responsibility of government to insure that these organizations operate in a coordinated way. It is your responsibility as a citizen to be informed of these organized efforts and to support them.

Social Complexity and Planning for Disaster Response

As our nation has become more urbanized and industrialized, our citizens have become much more dependent on one another for specialized skills, labor, and services. This interdependence has important implications for how we approach the task of preparing to deal with disaster. Whereas our "instinctive," human responses to an emergency are to withdraw into personal and family-centered activities, large-scale disaster tends to call for cooperative efforts on an equally large scale. If the

interdependent relations that support our complex economy and society are to be maintained, our preparations to cope with disaster must be sensitive to the complexity of the society which disaster endangers. Fortunately, experience tells us that disaster victims tend to be cooperative and mutually helpful to one another -- at least initially and within the confines of the family, home, and immediate neighborhood. We must build on this favorable response by educating people in the need to look beyond their immediate circumstances when they determine what needs to be done to recover from disaster. Psychologically, recovery from massive disaster implies that people recognize "we are all in this together," and this feeling must be translated to include not just the family, neighborhood, or community, but the entire disaster area -- in some cases, the entire country.

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SUMMARY

THE CONSIDERATION OF MULTIPLE HAZARDS IN CIVIL DEFENSE PLANNING AND ORGANIZATIONAL DEVELOPMENT

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THE CONSIDERATION OF MULTIPLE HAZARDS IN CIVIL DEFENSE PLANNING AND ORGANIZATIONAL DEVELOPMENT

Summary and Recommendations

The report briefly discusses a number of the dimensions which should be considered in developing a multiple-hazards approach to disaster preparedness. The report assumes that an adequate level of preparedness is a function of the organizational capacity and resources of formal organizations and public knowledge of the actions required to prevent, relieve, and recover from the effects of disaster. The present CD effort aimed at nuclear preparedness is described as inadequate for the following reasons: public support is minimal; CD relationships to other organizations are advisory only; CD resources are limited.

In light of these factors, a higher state of readiness for nuclear disaster is dependent, above all, on increased organizational capacity in OCD itself, other CD agencies, and other arms of local government and administration. A multiple-hazards approach can result in increased capacity to counter the effects of nuclear disaster. Such an approach should be developed on the basis of at least the following considerations:

- Civil Defense has developed a substantial body of knowledge about disaster and how to prevent or cope with it. This knowledge should be used to develop a comprehensive planning approach to disaster preparedness at the local level.

- In light of the many communalities in response to nuclear and non-nuclear disasters, a considerable number of preparedness measures can be defined to meet both forms of disaster, and the effect of such efforts should be reflected in greater formal organizational and public support for CD at the community level.

- Research and planning should provide guidance as to priorities in the preparedness efforts to counter nuclear and non-nuclear disaster -- to insure that preparations for nuclear attack are not brushed aside in everyday activities at the local level.

- Civil defense should be tied to comprehensive planning at the local and state levels -- and the Office of Civil Defense should explore means for incorporating CD components in existing comprehensive plans.

- Civil defense should develop means for increasing its visibility at the local level -- in particular, CD agencies should be prepared to publicize needs for additional preparedness resources in the wake of various kinds of disasters, while public opinion is responsive and local agencies are acutely aware of their needs for additional resources.

- Civil defense should utilize its existing knowledge of behavior and organization in disaster to familiarize the public with appropriate, responsible roles which citizens should fill under various, meaningful contingencies.

In their relations both with formal organizations and the general public, CD agencies should seek to translate the considerable existing knowledge about disaster into terms and actions meaningful to the layman. Part II of this report represents an effort to provide such a translation in the very technical and specialized areas of psychological and social effects.